

Abstract

Semiconductor-on-insulator substrate comprising a buried diamond-like layer and method for making same

The substrate successively comprises a base-(1), a diamond-like carbon layer-(3), a dielectric layer-(4) and a semi-conducting material layer-(5) which is designed to constitute microelectronic elements. A nucleation layer-(2) is preferably disposed between the base-(1) and the diamond-like carbon layer-(3). The dielectric material-(4) is chosen such that the upper level (E_{di}) of the valence band of the dielectric material-(4) is lower than the upper level (E_{cd}) of the valence band of the diamond-like carbon-(3). The semi-conducting material-(5) is chosen such that the upper level (E_{se}) of the valence band of the semi-conducting material-(5) is higher than the upper level (E_{cd}) of the valence band of the diamond-like carbon-(3). The substrate can be achieved by successive depositions of by assembly of first and second stacks.

(Figure 1)